



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,614	01/20/2004	Torbjorn Randahl	1406/179	9961
25297	7590	05/05/2006	EXAMINER	
JENKINS, WILSON, TAYLOR & HUNT, P. A.			NGUYEN, LINH. V	
3100 TOWER BLVD			ART UNIT	
SUITE 1200			PAPER NUMBER	
DURHAM, NC 27707			2819	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/760,614

Applicant(s)

RANDAHL ET AL.

Examiner

Linh V. Nguyen

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to communication filed on 2/21/05. Claims 1, 4 and 13 have been amended. Claim 3 has been canceled. Claims 1, 2, and 4 – 13 remain in this application

Response to Arguments

2. Applicant's arguments with respect to amended claims 1 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, and 11 - 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Coleman U.S. patent No. 4,714,978.

Regarding claim 1, Fig. 2 of Coleman discloses a line driver arrangement comprising: a differential class-D switching amplifier (85) having a switching frequency (86, 87), said class-D amplifier receiving a dual line input transmit signal (93, 94) and outputting an amplified dual line transmit signal (dual signal lines between primary winding 82 and differential amplifier 86, 87); a transformer (82) having a predetermined

Art Unit: 2819

leakage inductance (Col. 3 lines 45 – 47), having a primary winding (83) for receiving the amplified dual line transmit signal, and having a second winding for outputting a transformed dual line signal (104, 105) as dual line an output transmit signal (108, 109); wherein the leakage inductance predetermined for low pass filtering of the amplified transmit signal (Col.3 lines 50 - 55).

Regarding claim 4, wherein the dual lines signals being discrete multitone modulated signal (Fig. 4 [a, b]).

Regarding claim 11, Coleman as applied to claim 1 above does not employ the dual line driver (Fig. 2 [85, 82, 106]) of his is part of an ADSL transceiver. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art apparatus satisfying the claimed structural limitations.

Regarding claim 12, wherein the line driver arrangement further comprises resistances and/or inductances (81, 131).

Regarding claim 13, the claim incorporated similar subject matter as of claim 1 above, and rejected along the same rationale.

Regarding claim 14, wherein the amplifier is a class-D switching amplifier (having a switching frequency (86, 87)).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2819

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coleman as applied to claims 1, and further in view of Siao U.S. Patent No. 6,091,206.

Coleman as applied to claim 1 above, does not disclose one two capacitances are connected in series between the two lines between the class-D amplifier and the transformer, and wherein a node between the two capacitances is connected to a reference voltage.

Fig. 1 of Siao discloses a class D line driver having two capacitances (C1, C2) is connected in series between the two lines between the class-D amplifier and the transformer, and wherein a node between the two capacitances is connected to a reference voltage (Ground potential).

Coleman and Siao are common subject matter for class D driver. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Siao into Coleman for the purpose of determine the operating frequency range and also serve to protect the switching transistors by providing AC impedance when subject to high frequency transient signals or voltage spikes (Siao, page 2 line 64 – page 3 line 5).

7. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coleman as applied to claims 1, and further in view of Schrott et al. U.S. Patent No. 6,535,108.

Coleman as applied to claim 1 above, does not explicitly disclose the leakage inductance (Col. 3 lines 46 – 47) or capacitance (35C) is predetermined at a minimum resonance frequency.

Col. 1 lines 21 – 25 of Schrott et al. discloses a resonant circuit having inductance L, capacitance C, resistance values are chosen such that the resonant circuit is a minimum at a resonant frequency.

Coleman and Schrott et al. are common subject matter for LC filter circuit. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the LC circuit of Coleman having selected values at a minimum resonant frequency for the purpose of reproduce a signal according to resonant of interests of the LC filter (Schrott; Col. 1 lines 21 – 25).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coleman as applied to claims 1 above, and further in view of Ramage et al. Pub.No.: 2003/0095000.

Coleman as applied to claim 1 above, does not disclose a low pass filter is coupled between the class D amplifier (33) and the transformer (34) of his.

Fig. 1 of Ramage et al. discloses a low pass filter (22,23,26,27) is coupled between class D amplifier (20, 21) and the transformer (30).

Art Unit: 2819

Coleman and Ramage et al. are common subject matter for class D amplifier.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated the low pass filter taught by Ramage et al. into Coleman for the purpose of providing appropriated audio frequency signal to the human ear.

9. Claim 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coleman as applied to claims 1 above, and further in view of Applicant Admitted Prior Art (AAPA).

Coleman et al. as applied to claims 1 above, does not explicitly disclose the line driver (Fig. 1) of his having a power spectral density that complies with ADSL standard.

AAPA, under Background, on page 1 lines 5 – 7, and on page 2 lines 1 – 24, discloses a line driver arrangement utilizing class D power amplifier having a power spectral density that complies with ADSL standard.

Coleman and AAPA are common subject matter for line driver arrangement utilizing class D amplifier. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated the teaching class D of AAPA into Class D of Coleman for the purpose of fulfill certain requirements of ADSL standard of line driver (AAPA, page 2 lines 1 – 5) and providing a guidelines for design and implementation of a DSS technology (AAPA, page 2, lines 23- 24).

Art Unit: 2819

10. Claim 7 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Coleman modified by Siao as applied to claim 5 above, and further in view of Miyajima et al. Pub. No.: 2003/0042801.

Fig. 2 of Coleman as applied to claim 5 above does not explicitly disclose the low pass filter (106) of his having a cutoff frequency that is lower than the resonance frequency.

Paragraph [0109] of Miyajima et al. teaches the low pass filter having a cutoff frequency that is lower than the resonance frequency.

Coleman and Miyajima et al. are common subject matter for low pass filter. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated the low pass filter of Miyajima into Ramage for the purpose of preventing the ripple output (Miyajima, paragraph 0019).

Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2819

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Rexford Barnie can be reached at (571) 272-7492. The fax phone numbers for the organization where this application or proceeding is assigned are (571-273-8300) for regular communications and (571-273-8300) for After Final communications.

LINH NGUYEN
PRIMARY EXAMINER

5/1/06

Linh Van Nguyen

Art Unit 2819

